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05/26/2006

Jurgen Rabenhorst

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EXAMINER

KOSAR, AARON J

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/596,053	RABENHORST, JURGEN	
	Examiner	Art Unit	
	Aaron J. Kosar	1651	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 November 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>5/26/2007</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election of group I, claims 1-8 in the reply filed on November 21, 2007 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election **without traverse** (MPEP § 818.03(a)).

Applicant has responded by cancelling claims 9 and 10. Claims 1-8 are presently pending and have been examined on their merits.

Miscellaneous

Please note, certain organisms among the taxonomic genera of *Acetobacter* and *Gluconobacter* have a pedigree of a plurality of names and/or reassigned classification(s). Whereas the *G. oxydans* DMS 12884 strain appears to be free of such renaming/reclassification, to avoid any potential 35 U.S.C. 112 or 103 issues which may arise from multiplicity of taxa for a single species or a known change in the classification of an organism, Applicant is encouraged to preferably identify each microorganism consistently by its currently accepted taxonomic classification; however, to the extent that Applicant must use a second or obsolete name of a singular microorganism, Applicant should also indicate in the record the obsolescence or dual-naming as necessary to the extent that such 112 or 103 may be preempted. For example, the microorganisms of *Gluconobacter oxydans* ATCC 621 and ATCC 236652 disclosed in the prior art were deposited from cultures originally identified as *Acetobacter oxydans* and *Acetomonas oxydans*, respectively (see for example ATCC (Pienta, J., et al., ATCC Bacteria and Bacteriophages. 19th ed., 1996, pages 174-175.) and WILM (Wilm, K. "Our Food: Database of

food and Related Resources” Ourfood(Germany), <<http://web.archive.org/web/20030626062003/http://www.ourfood.com/OurFood.pdf>> , archived May 28, 2003 (accessed January 11, 2008), page 39.)).

Application Data Sheet/Oath/Declaration

The Application Data Sheet (ADS) is objected to because the ADS and Oath/Declaration are inconsistent, because each claims different domestic versus foreign priority for the same documents. Since both the ADS and Oath were filed concurrently, the ADS is controlling, though both documents are deficient in classifying the foreign versus domestic priority documents. However, a supplemental ADS claiming PCT/EP04/53076 under domestic priority/continuing data and DE 103557342 (Germany) as having foreign priority would be sufficient to overcome this inconsistency (See MPEP §§ 601.05).

Information Disclosure Statement

The information disclosure statement (IDS) submitted on May 26, 2006 has been considered by the Examiner; however, references therein have been considered to the extent present in the English language, as indicated in an English language translation, as argued in the original disclosure of the invention, or as listed separately by the Examiner on a PTO-892. the extent considered has been indicated by initialing the references (considered) and/or annotating the reference to express the extent considered (e.g. “Abstract only”). References listed in the IDS which are not in the English language or which the relevance of the reference(s) have insufficient support in the specification, were not considered and have been lined through.

Claim Objections

Claims 1-3 are objected to because of the following informalities:

The conventional recitation of taxonomic classification requires that Genus-species should be italicized.

Additionally, deposited organisms are also conventionally named minimally according to the taxonomic genus and species plus the depository abbreviation and deposit number. Although the depository/deposit number is defining of the organismal strain, multiple deposits of an organism may be made across the various depositories (e.g. DSMZ, ATCC, etc) and thus for each deposited microorganism, where known, to avoid potential confusion as to the identity of the organism, the taxonomic genus and species of a deposited organism should be accompanied by the recitation of the subspecies, etc. that most clearly identify the strain. (e.g. *Gluconobacter* sp. DSM 12884 (claim 3) versus *Gluconobacter oxydans* ssp. *suboxydans* DSM 12884 (specification, page 3).

Claims 1-8 are objected as being improper claim format appearing to result from literal translation of the claims. Independent process claims should recite “A method of.” whereas the dependent claims should recite “The method of claim [1,2,etc.], wherein.” to avoid potential ambiguity as to whether the methods are different methods or methods dependent upon an independent claim.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 5 is rejected under 35 U.S.C. 101 because claim 1, the claims are directed towards a method of preparing a ketone from it's respective alcohol (method of using a microorganism) by fermentation with a microorganism in a fermentation media, whereas the step of claim 5

claims a method of cultivating a bacterium prior to the method of converting an alcohol to a ketone. Claim 5 is not further limiting of a method of making a ketone from an alcohol in a fermenting medium, but is instead a method of making ("precultivating" in a cultivating medium) a bacterium which said bacteria finds use in the claimed method. The claims are rejected because the claims are drawn to two inventions (method of making ketone/method of using a bacterium versus a method of making a cultivated bacterial preparation), each of which is a patentably distinct invention, within a single claim, although Applicant may only claim one invention in a claim/series of dependent claims.

For the sake of compact prosecution, though the claims are rejected as argued above, the claims have also been examined in the context of claim 1 with the step of claim 5 treated as an intended use/source. This does not absolve Applicant of the requirement to address the rejections of claim 5, and appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 4 and 5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 4 and 5 are indefinite because the phrase "claim 1, characterized in that..contains mannitol, malt extract, yeast extract, soya flour, cottonseed flour, wheat gluten, casein, casein hydrolysate, maize steep liquor, citric acid, acetic acid or mixtures or several of these constituents" is unclear. The phrase is unclear, because the phrase "mannitol,..acetic acid" lacks

a conjunction (e.g. "or") or identification of a Markush grouping and is therefore unclear as to whether each component must be present in the utilized composition or whether the components may be optional. Each is a reasonable interpretation of the claims and each embraces different subject matter such that one would not be apprised as to the metes and bounds of the claims that Applicant intends to claim, rendering the claims indefinite.

Claims 4 and 5 are also indefinite because the phrase "or mixtures or several" in incomplete in that the claim lacks the object (X) of what is mixed (e.g. or mixtures *of* X). It is unclear if the "mixtures or several" refer to the preceding species (mannitol, etc) individually, or collectively, or to other compositions. Each is a reasonable interpretation of the claims and each embraces different subject matter such that one would not be apprised as to the metes and bounds of the claims that Applicant intends to claim, rendering the claims indefinite.

Claims 4 and 5 recite the limitation "these constituents". There is insufficient antecedent basis for this limitation in the claim, because the claims do not define/recite a "constituent" preceding the phrase "these constituents"

Please note, however, that the above grounds of rejection may be overcome by indicating for example "...claim 1, wherein the fermentation medium comprises constituents selected from the group consisting of mannitol, ..or acetic acid, or mixtures of the constituents.."

Claims 1-8 are incomplete for omitting essential steps. While all of the technical details of a method need not be recited, the claims should include enough information to clearly and accurately describe the invention and how it is to be practiced. The minimum requirements for method steps minimally include a *contacting step* in which the reaction of the sample with the reagents necessary for the assay is recited, a *reacting step* in which the reaction steps are

effected, and a *correlating/concluding step* describing the result. In these claims, the concluding step is missing, because the phrase “to form” is not an active step. Also, claims are incomplete in the absence of a recovery step for the product produced.

While there is no specific rule or statutory requirement which specifically addresses the need for a recovery step in a process of preparing a composition, it is clear from the record and would be expected from conventional preparation processes that the product must be isolated or recovered. Thus the claims fail to particularly point out and distinctly claim the “complete” process since the recovery step is missing from the claims. The metes and bounds of the claimed process are therefore not clearly established or delineated and one would not be apprised of the subject matter embraced by the claims, rendering the claims indefinite.

This ground of rejection may be overcome, however, by reciting for example,
“...a corresponding ketone, the process comprising:

- a) in a fermentation medium, fermenting the alcohol with a bacterium of the *Gluconobacter* and/or *Acetobacter* genus and converting the alcohol to the corresponding ketone; and
- b) obtaining the corresponding ketone.”

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-8 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The invention appears to employ a specific strain of *Gluconobacter oxydans* ssp. *suboxydans* DSM 12884, to obtain a specific ketone product. It is not clear if the written description is sufficiently repeatable to avoid the need for a deposit. Further it is unclear if the starting materials were readily available to the public at the time of invention.

It appears that a deposit was made in this application as filed as noted on page 3, line 29 of the specification and in the originally presented claim 9. However, it is not clear if the deposit criteria set forth in 37 CFR 1.801-1.809 are met. Applicant or applicant's representative may provide assurance of compliance with the requirements of 35 U.S.C § 112, first paragraph, in the following manner.

SUGGESTION FOR DEPOSIT OF BIOLOGICAL MATERIAL

A declaration by applicant, assignee, or applicant's agent identifying a deposit of biological material and averring the following may be sufficient to overcome an objection and rejection based on a lack of availability of biological material.

1. Identifies declarant.
2. States that a deposit of the material has been made in a depository affording permanence of the deposit and ready accessibility thereto by the public if a patent is granted. The depository is to be identified by name and address.
3. States that the deposited material has been accorded a specific (recited) accession number.
4. States that all restriction on the availability to the public of the material so deposited will be irrevocably removed upon the granting of a patent.
5. States that the material has been deposited under conditions that access to the material will be available during the pendency of the patent application to one determined by the Commissioner to be entitled thereto under 37 CFR 1.14 and 35 U.S.C § 122.
6. States that the deposited material will be maintained with all the care necessary to keep it viable and uncontaminated for a period of at least five years after the most

recent request for the furnishing of a sample of the deposited microorganism, and in any case, for a period of at least thirty (30) years after the date of deposit for the enforceable life of the patent, whichever period is longer.

7. That he/she declares further that all statements made therein of his/her own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the instant patent application or any patent issuing thereon.

Alternatively, it may be averred that deposited material has been accepted for deposit under the Budapest Treaty on the International Recognition of the Deposit of Microorganisms for the purpose of Patent Procedure (e.g. see 961 OG 21, 1977) and that all restrictions on the availability to the public of the material so deposited will be irrevocably removed upon the granting of a patent.

Additionally, the deposit must be referred to in the body of the specification and be identified by deposit (accession) number, date of deposit, name and address of the depository and the complete taxonomic description.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1 and 2 are rejected under 35 U.S.C. 102(a) as being anticipated by ADACHI (JP 2003180343 A (Machine translation and Derwent Abstract)).

The claims are generally drawn to conversion of a compound by a method of fermenting a secondary alcohol having five or more carbons into the corresponding ketone using a *Gluconobacter* or *Acetobacter* bacterium.

Adachi teaches that *Gluconobacter*, *Acetobacter* and the enzymes derived therefrom ferment (catalytically oxidize) a broad array of substrates, including substrates with five or more carbon atoms, including 3-pentanol, 2-hexanol, cyclohexanol, cyclopentanol, cyclooctanol, etc. (e.g. table 3, page 7 (machine translation page 6)). Adachi also teaches the enzyme activity of a strain of bacteria, *Gluconobacter frateurii* CHM 9 with cyclohexanol (§ 16-18; table 1).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over ODA (JP 06000090 A) or ODA in view of WILM (Wilm, K. "Our Food: Database of food and Related Resources" Ourfood(Germany), <<http://web.archive.org/web/20030626062003/http://www.ourfood.com/OurFood.pdf>> , archived May 28, 2003 (accessed January 11, 2008), pages 1-6 and 35-88.) and CIRIGLIANO (Cirigliano, M.C., "A Selective Medium for the Isolation and Differentiation of *Gluconobacter* and *Acetobacter*" Journal of Food Science. 1982, 47 (3), 1038-1039. (Abstract only)).

The general teachings of the claims are above.

ODA teaches a microorganism (*Rhodococcus*), culturing at 30°C, and reacting 2-octanol with the microorganism to yield 2-octanone (DERWENT abstract; machine translation, ¶ [0040]).

Oda teaches that the microorganisms useful in the invention include those that belong to *Gluconobacter*, including *G. oxydans*, and *Acetobacter* (§ [0017]). Oda also teaches that the microorganisms may be used to react in a variety of media/nutrients, including yeast extract, and the media/nutrients selected depending upon the chosen microorganism (§ [0019-0021]). Oda further teaches that the invention may be practiced with primary and secondary alcohols, including benzhydrol (diphenylmethanol), 2-pentanol, 2-octanol, and cyclohexanol (§ [0026]). Oda also teaches that "aldehydes, ketones, and carboxylic acids" accumulate in the organic liquid phase of the reaction and may be collected (§ [0030]).

WILM teaches that the taxonomic genera *Gluconobacter* and *Acetobacter* belong to the family *Acetobacteraceae* (page 39). Wilm also teaches that the optimal temperature and pH for the organisms are pH 5.5-6.0 at 25-30°C for *Gluconobacter oxydans* and pH 5.4-6.3 at 25-30°C for *Acetobacter*, respectively (chapter 4, page 39-40).

CIRIGLIANO teaches that Dextrose Sorbitol Mannitol (DSM) media comprises mannitol and is selective for *Gluconobacter* and *Acetobacter*.

To the extent Oda teaches generally with respect to a specific combination of secondary alcohol: *Gluconobacter*/*Acetobacter* microorganism: ketone, it would have been obvious to combine a secondary alcohol with a *Gluconobacter*/*Acetobacter* microorganism (hereafter referred to as the "microorganism") to produce a ketone, because Oda teaches that the compounds and microorganisms may be reacted to produce products, including ketones and that ketones of the reacted alcohol also accumulate in the reaction organic phase (see above). One would have been motivated to use the microorganism to convert a secondary alcohol to its respective ketone using the microorganism, because Oda teaches the microorganism is useful in

the invention for the purpose of reacting with primary and secondary alcohols and because Oda also teaches that the microorganisms in the invention may be used to convert substrates, including the alcohols recited above, into products, including ketone products. One would have had a reasonable expectation of success in making a ketone using a process of contacting a substrate with the microorganism, because the microorganisms, substrates, and the products are taught by Oda and reacting a known compound with a known microorganism to produce a known product by a known method (contacting a microorganism with a secondary alcohol substrate) are taught by Oda and for the reasons argued above.

It would have been obvious to further cultivate the microorganismal reaction using the claimed media, because Cirigliano teaches that DSM media, which comprises the claimed species of mannitol. One would have been motivated to use the media of Cirigliano in to cultivate the microorganism, because Cirigliano teaches that DSM media is useful in the selective culturing (isolation and differentiation) of the *Gluconobacter* and *Acetobacter* taxonomic genera (abstract). One would have had a reasonable expectation of success in using the media with the microorganism because Cirigliano teaches using the media for culturing the microorganism. Although Cirigliano teaches generally with respect to a specific strain of bacteria, from the teachings of Cirigliano one would have expected the media to be useful with any *Gluconobacter* or *Acetobacter* and modifications thereof being well within the purview of the skilled artisan, especially in the absence of side-by-side comparisons and/or evidence to the contrary.

Oda is relied upon for the reasons discussed above. If not expressly taught by Oda, based upon the overall beneficial teaching provided by this reference with respect to selecting

primary/secondary alcohols and microorganisms including *Gluconobacter/Acetobacter* in the manner disclosed therein, the adjustments of particular conventional working conditions (e.g., determining one or more suitable microorganism and/or alcohol in which to perform such a ketone-producing/containing reaction), is deemed merely a matter of judicious selection and routine optimization which is well within the purview of the skilled artisan.

It would have been obvious to one skilled in the art at the time of invention to determine all optimum and operable conditions (e.g. optimal culturing temperature, times, and pH), because such conditions are art-recognized result-effective variables that are routinely determined and optimized in the art through routine experimentation and because the optimal temperatures and pH for each microorganism is known as taught by WILM and thus the optimal ranges of the claimed invention are well within the purview of the skilled artisan. ("[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). *See* MPEP § 2145.05).

From the teachings of the reference(s), it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention. Therefore, the invention as a whole was prima facie obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references, especially in the absence of evidence to the contrary.

Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over ADACHI (JP 2003180343 A (Machine translation and Derwent Abstract)) or ADACHI in view of WILM (Wilm, K. "Our Food: Database of food and Related Resources" Ourfood(Germany),

<<http://web.archive.org/web/20030626062003/http://www.ourfood.com/OurFood.pdf>> ,

archived May 28, 2003 (accessed January 11, 2008), pages 1-6 and 35-88.) and CIRIGLIANO (Cirigliano, M.C., "A Selective Medium for the Isolation and Differentiation of *Gluconobacter* and *Acetobacter*" *Journal of Food Science*. 1982, 47 (3), 1038–1039. (Abstract only)).

The general teachings of the claims and the teaching of Adachi, Wilm, and Cirigliano are also above. In summary, Adachi generally teaches using *Gluconobacter* species to produce linear and cyclic secondary ketones from the corresponding secondary alcohols.

To the extent Adachi generally teaches the general fermentation of the substrate/bacteria to produce the desired product, it would have been obvious to further cultivate the microorganismal reaction using the claimed media. It would have been obvious to use the claimed media because Cirigliano teaches the claimed DSM media is known and said media comprises the claimed species of mannitol. One would have been motivated to use the media of Cirigliano to cultivate the microorganism, because Cirigliano teaches that DSM media is useful in the selective culturing (isolation and differentiation) of the *Gluconobacter* and *Acetobacter* taxonomic genera (abstract). One would have had a reasonable expectation of success in using the media with the microorganism, because Cirigliano teaches using the media for culturing the microorganism. Although Cirigliano teaches generally with respect to a specific strain of bacteria, from the teachings of Cirigliano one would have expected the media to be useful with any *Gluconobacter* or *Acetobacter* and modifications thereof being well within the purview of the skilled artisan, especially in the absence of side-by-side comparisons and/or evidence to the contrary.

Adachi is relied upon for the reasons discussed/made of record above. If not expressly taught by Adachi, based upon the overall beneficial teaching provided by this reference with respect to selecting primary/secondary alcohols and microorganisms including *Gluconobacter/Acetobacter* in the manner disclosed therein, the adjustments of particular conventional working conditions (e.g., determining one or more suitable microorganism and/or alcohol in which to perform such a ketone-producing/containing reaction), is deemed merely a matter of judicious selection and routine optimization which is well within the purview of the skilled artisan.

It would have been obvious to one skilled in the art at the time of invention to determine all optimum and operable conditions (e.g. optimal culturing temperature, times, and pH), because such conditions are art-recognized result-effective variables that are routinely determined and optimized in the art through routine experimentation and because the optimal temperatures and pH for each microorganism is known as taught by WILM and thus the optimal ranges of the claimed invention are well within the purview of the skilled artisan. ("[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). *See* MPEP § 2145.05).

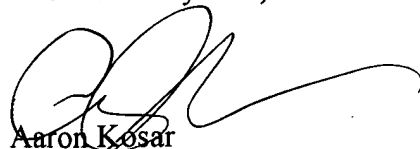
From the teachings of the reference(s), it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention. Therefore, the invention as a whole was prima facie obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references, especially in the absence of evidence to the contrary.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aaron J. Kosar whose telephone number is (571) 270-3054. The examiner can normally be reached on Monday-Thursday, 7:30AM-5:00PM, ALT. Friday, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Wityshyn can be reached on (571) 272-0926. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Aaron Kosar
Examiner, Art Unit 1651

SANDRA E. SAUCIER
PRIMARY EXAMINER
